DEPARTMENT OF WATER RESOURCES
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(916) 653-5791

October 3, 2014

TO: Long Range Weather Forecasting Committee Members

SUBJECT: Fall and Winter 2014-15 Forecasts

Based on the estimated runoff of the eight major rivers of the Sacramento San Joaquin River system, Northern California is ending the fourth driest water year in over a century of runoff records. WY 1977 was the driest, followed by WY 1924, and third was 1931. However, on the San Joaquin River portion, the southern four of the eight river system, runoff during the last three water years has been the driest 3-year period in a 114 year record. The two preceding dry years in 2012 and 2013 reduced reservoir storage and now, after a dismal season, water storage in the State's major reservoirs is only about 1/3 of capacity. All eyes are turned to the sky to see what we can expect in this new water year. A late September north Pacific storm did dump a couple of inches at some mountain locations in the north State—a hopeful beginning (and a great help to the wildfire situation) but not significant yet for water production.

Attached are several charts of current Pacific Ocean conditions from the Climate Prediction Center (CPC). The first shows ocean temperatures, which are generally warmer than average over the North Pacific. This is not much different than last year, except the sea surface is now warmer off Baja California and the El Nino regions near the equator. The next two charts are the Nino boxes and the forecasts of a weak El Nino this winter. The Pacific Decadal Oscillation (PDO) was negative last fall, but has turned positive in January of this year with a 0.67 reading in August, as reported by the University of Washington. Last year in August this index was -1.04 (negative).

The CPC forecasts for the coming seasons came in on September 18 with little change from recent months calling for a warm fall and winter for the west coast and dry in the Pacific Northwest and northern California, while wetter than average in the Southwest—a classic El Nino signal. Later in the winter, the dry signal retreats northward into Oregon for a neutral northern California precipitation outlook.

The next attachments, a set of charts, were sent to me by Dr. Art Douglas, former head of the Meteorology Department of Creighton University in Omaha and now retired in southeastern Arizona. He is more optimistic with a near normal fall, wetter and warmer in the winter, and a wet, cool spring. He feels that the overall Pacific pattern is that of a good El Nino, though the particular Nino boxes on the equator do not show a strong signal because warming there has been inhibited by a strong south Pacific high. He said his analog forecasts have been showing a wet winter for four months now with good moisture in northern California in the February through April time-frame.

The next set of maps for fall and winter are from the International Research Institute of Columbia University at Palisades, New York. It is similar to the CPC for the U.S. (based on the same methodology), but shows other countries in North America. There is a lot of warmth forecasted for the continent; the only cool area is the U. S. southern high plains. Winter looks rather dry in northern South America, as well as in the Pacific Northwest.

The drought monitor map is attached near the end of the package. California, western Nevada, and southern plains continue to be the largest dry areas in the nation, with the bull's eye on California. For the summer months of 2014, the California temperature average for eight weather stations tracked by consulting meteorologist Jan Null has been 1.5 degrees F above average—which tends to worsen drought conditions for crops.

If you have questions or comments, please feel free call me at (916) 574-2625 or e-mail at Maury.Roos@water.ca.gov.

Sincerely,

Maurice Roos

Maurice Roos
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Attachments

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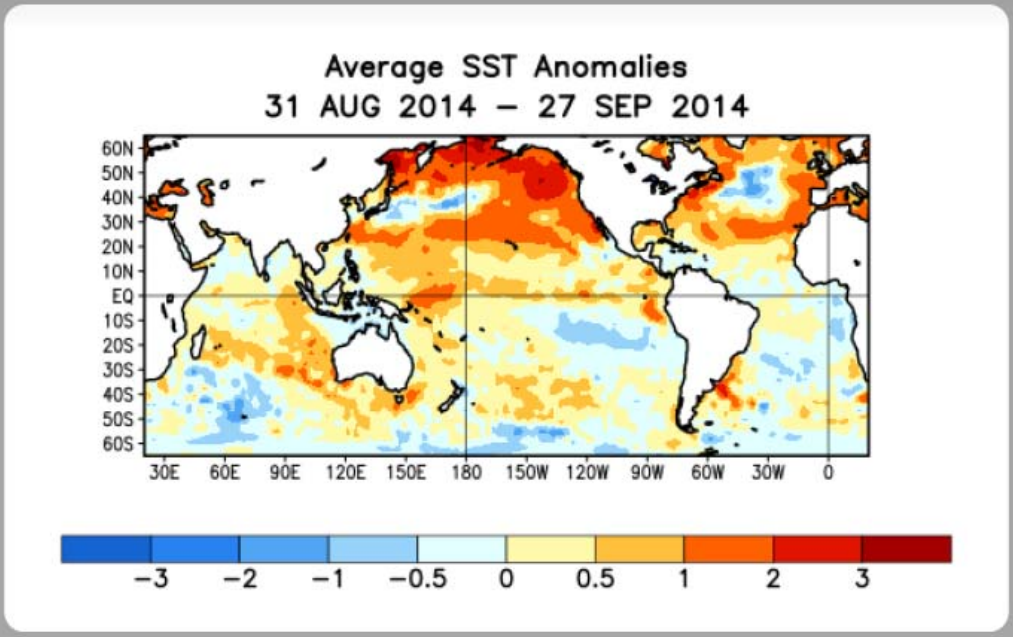
Keith Swanson, CDWR
Eric Koch, CDWR
George Qualley, CDWR
Arthur Hinojosa, CDWR
Jon Ericson, CDWR
David Roose, CDWR
Elissa Lynn, CDWR
Matt Winston, CDWR
Steven Nemeth, CDWR
Michael Anderson, CDWR
Jeanine Jones, CDWR
Jose Faria, CDWR
Peter Coombe, CDWR
Laura King-Moon, CDWR

Global SST Departures (°C) During the Last Four Weeks

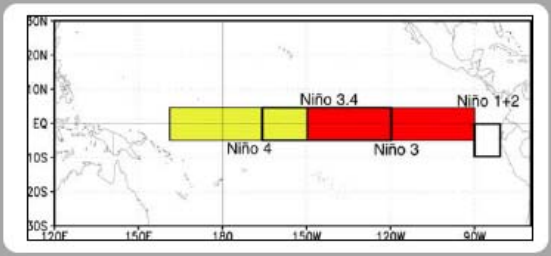
During the last four weeks, equatorial SSTs were above-average across much of the Pacific and eastern Indian Ocean.

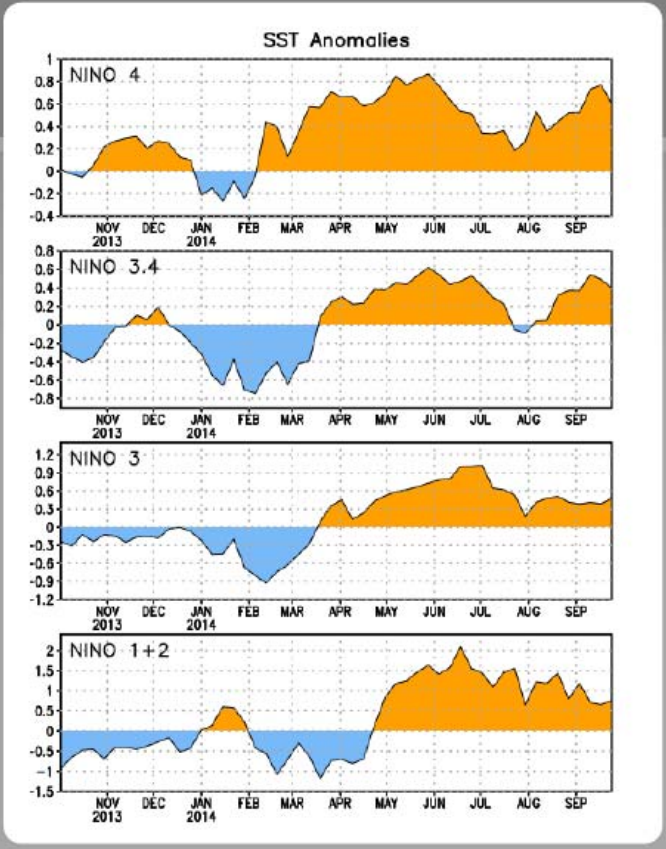


Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

Niño 4	0.6°C
Niño 3.4	0.4°C
Niño 3	0.5°C
Niño 1+2	0.8°C





IRI/CPC Pacific Niño 3.4 SST Model Outlook

Most models favor El Niño (greater than or equal to +0.5°C) to develop during October-December 2014 and persist through Northern Hemisphere winter 2014-15.

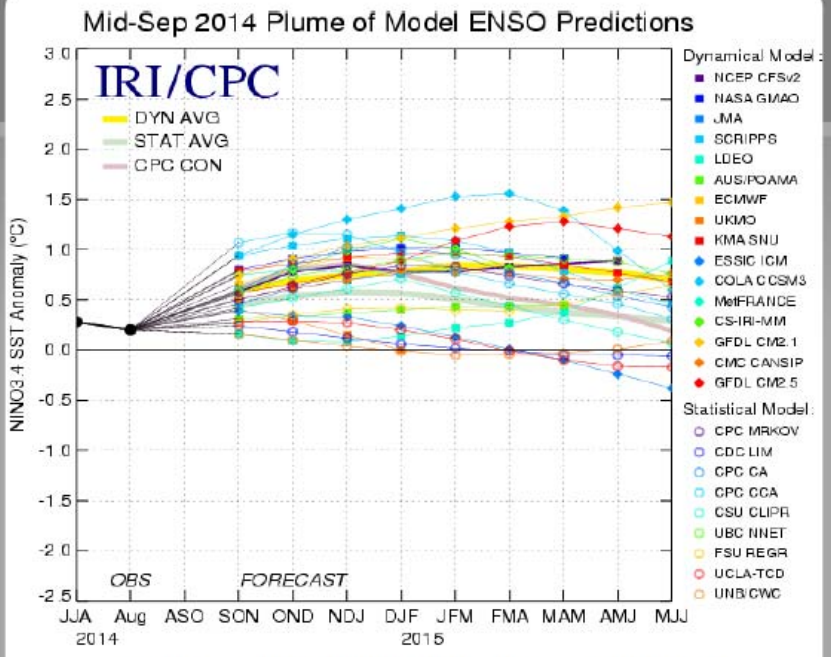
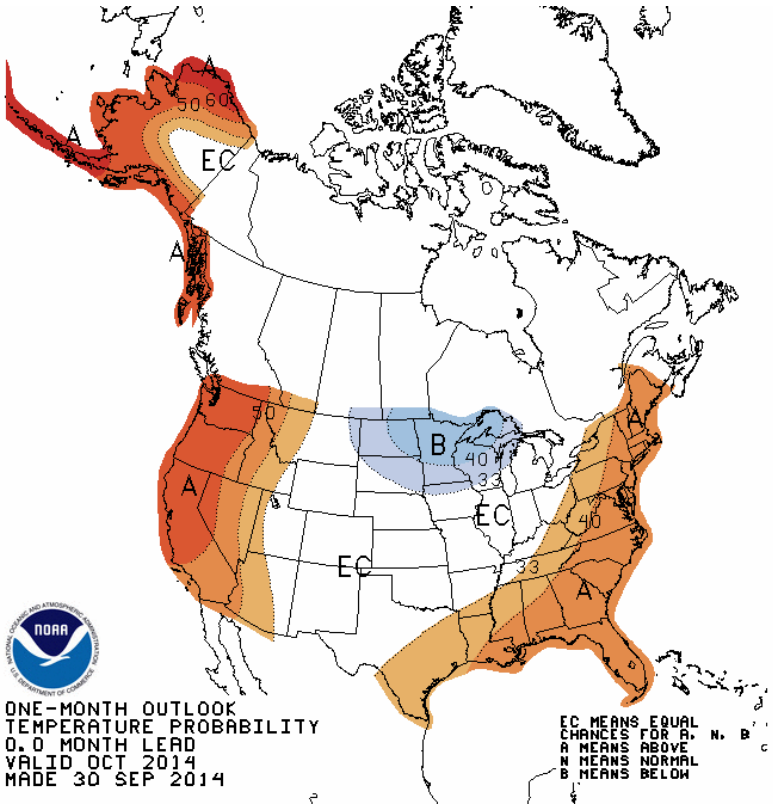


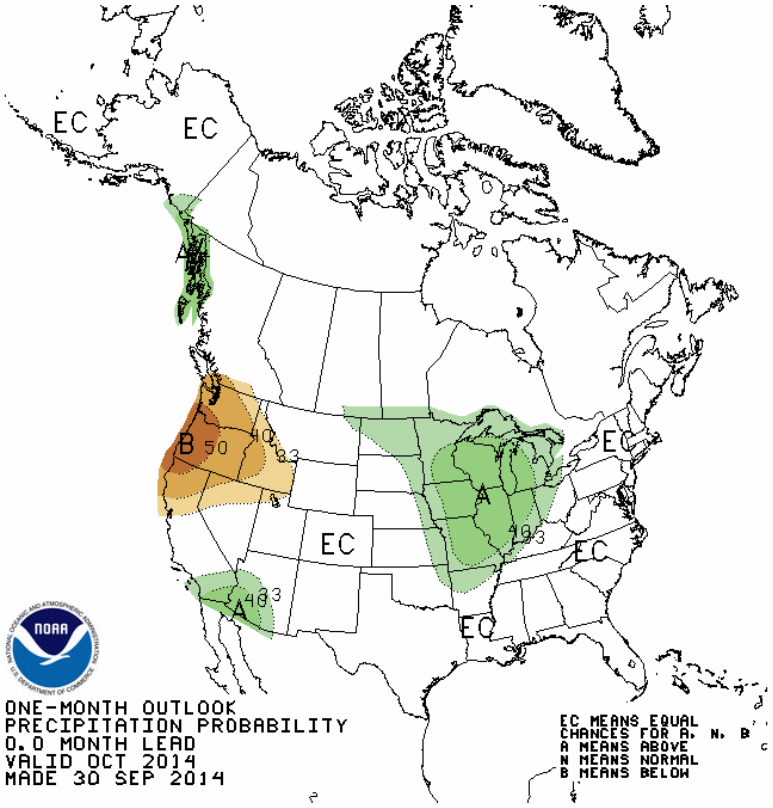
Figure provided by the International Research Institute (IRI) for Climate and Society (updated 16 September 2014).

One-Month Outlook

Revised OFFICIAL Forecasts

October 2014

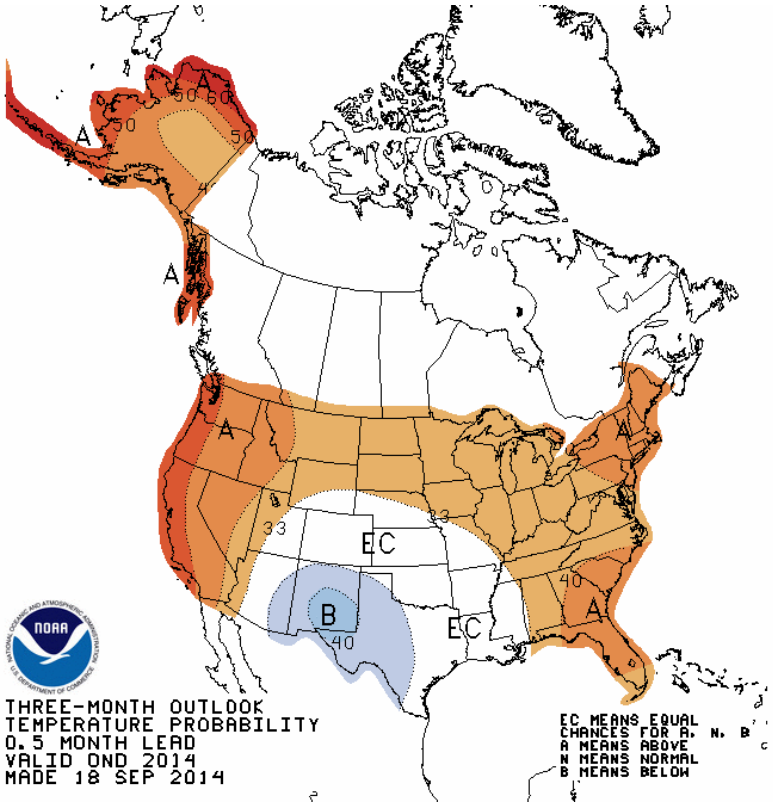


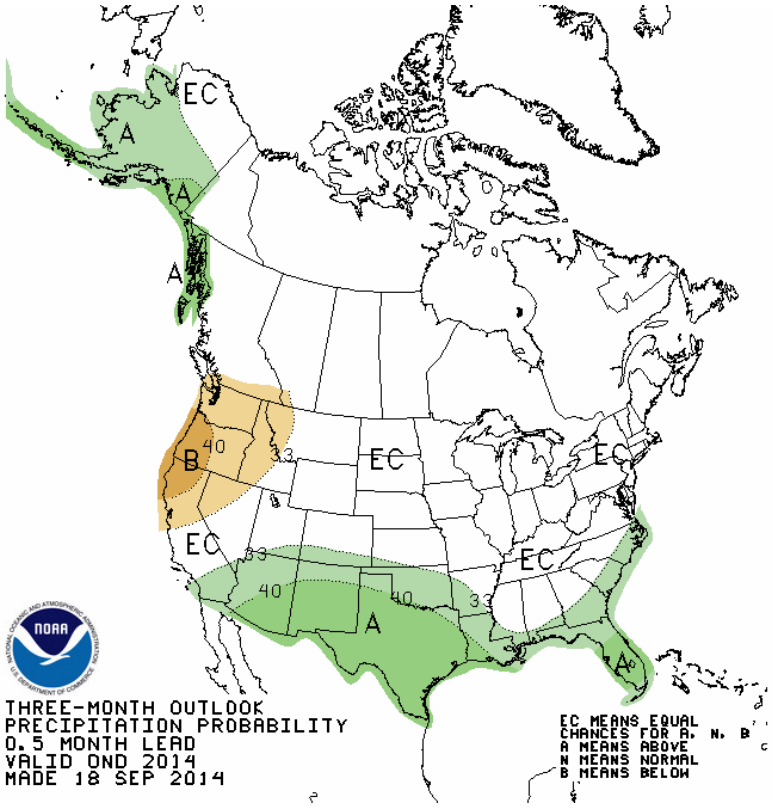


Three-Month Outlooks

OFFICIAL Forecasts

Oct-Nov-Dec 2014

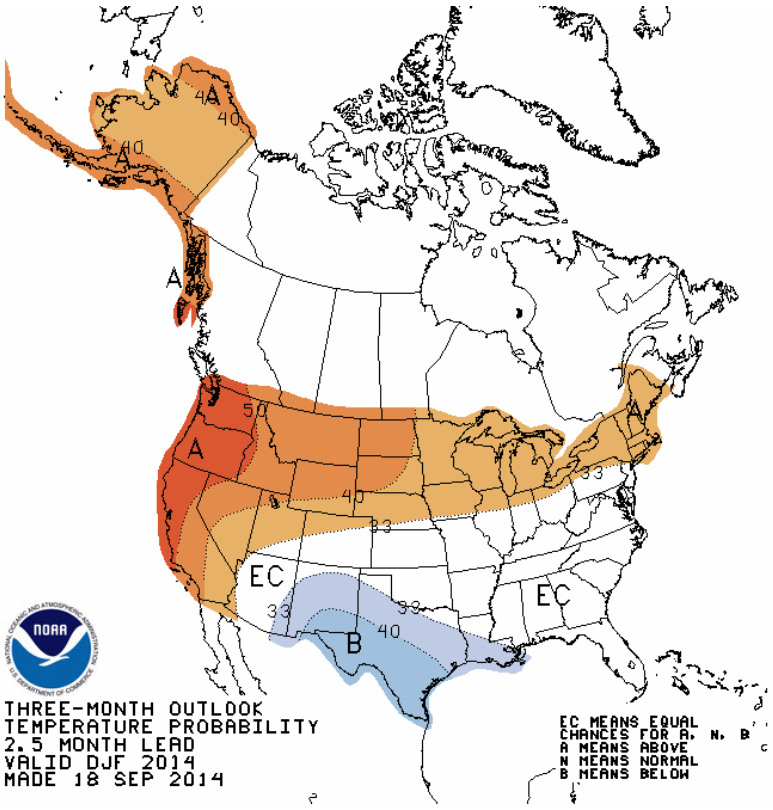


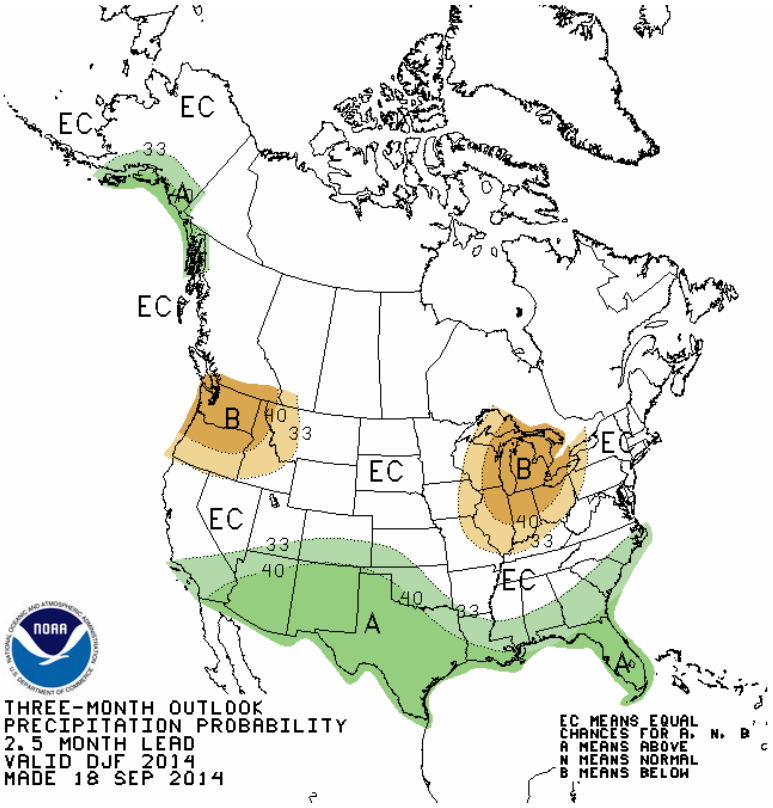


Three-Month Outlooks

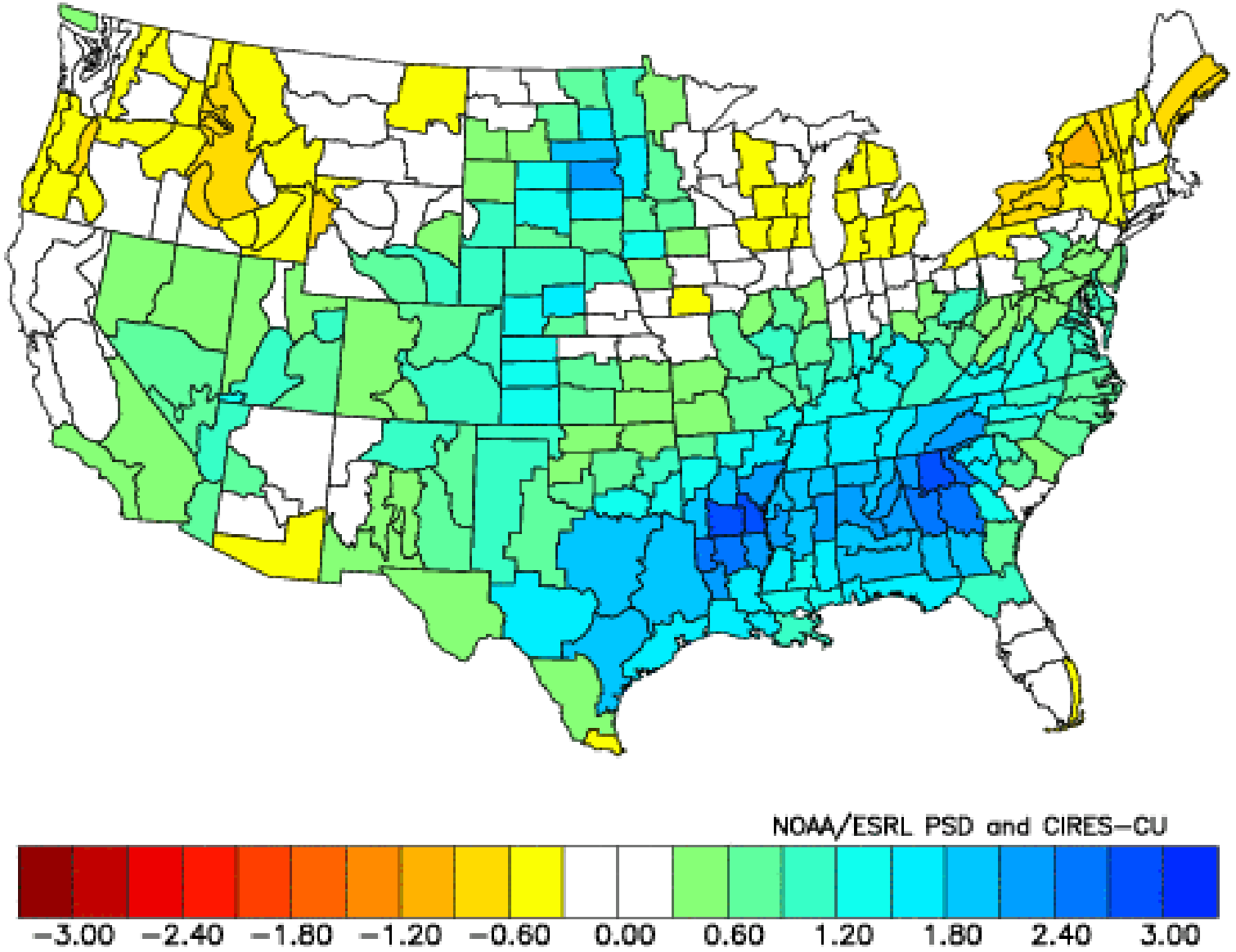
OFFICIAL Forecasts

Dec-Jan-Feb 2014-15

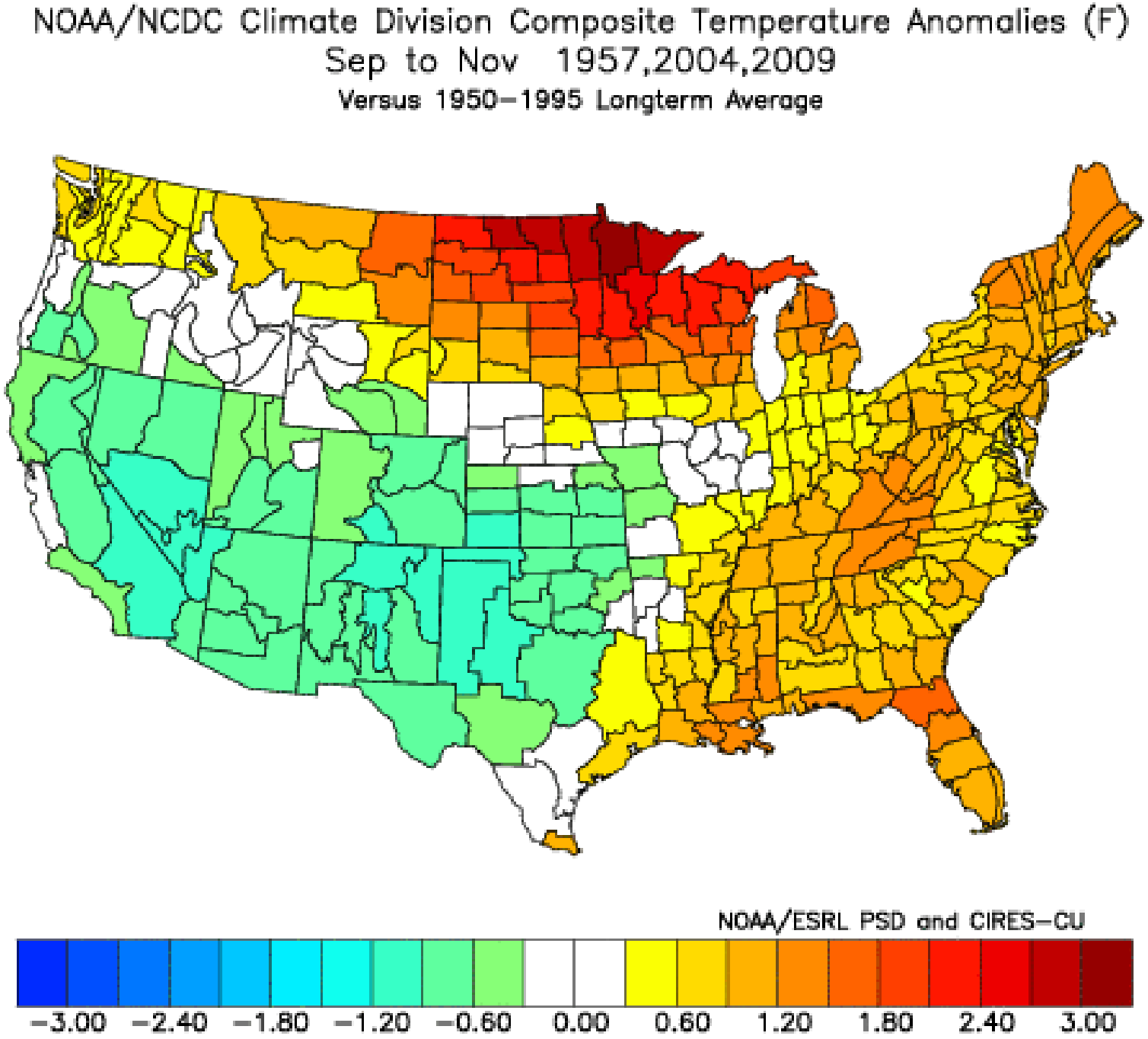




NOAA/NCDC Climate Division Composite Standardized Precipitation Anomalies
Sep to Nov 1957,2004,2009
Versus 1950–1995 Longterm Average



ART DOUGLAS

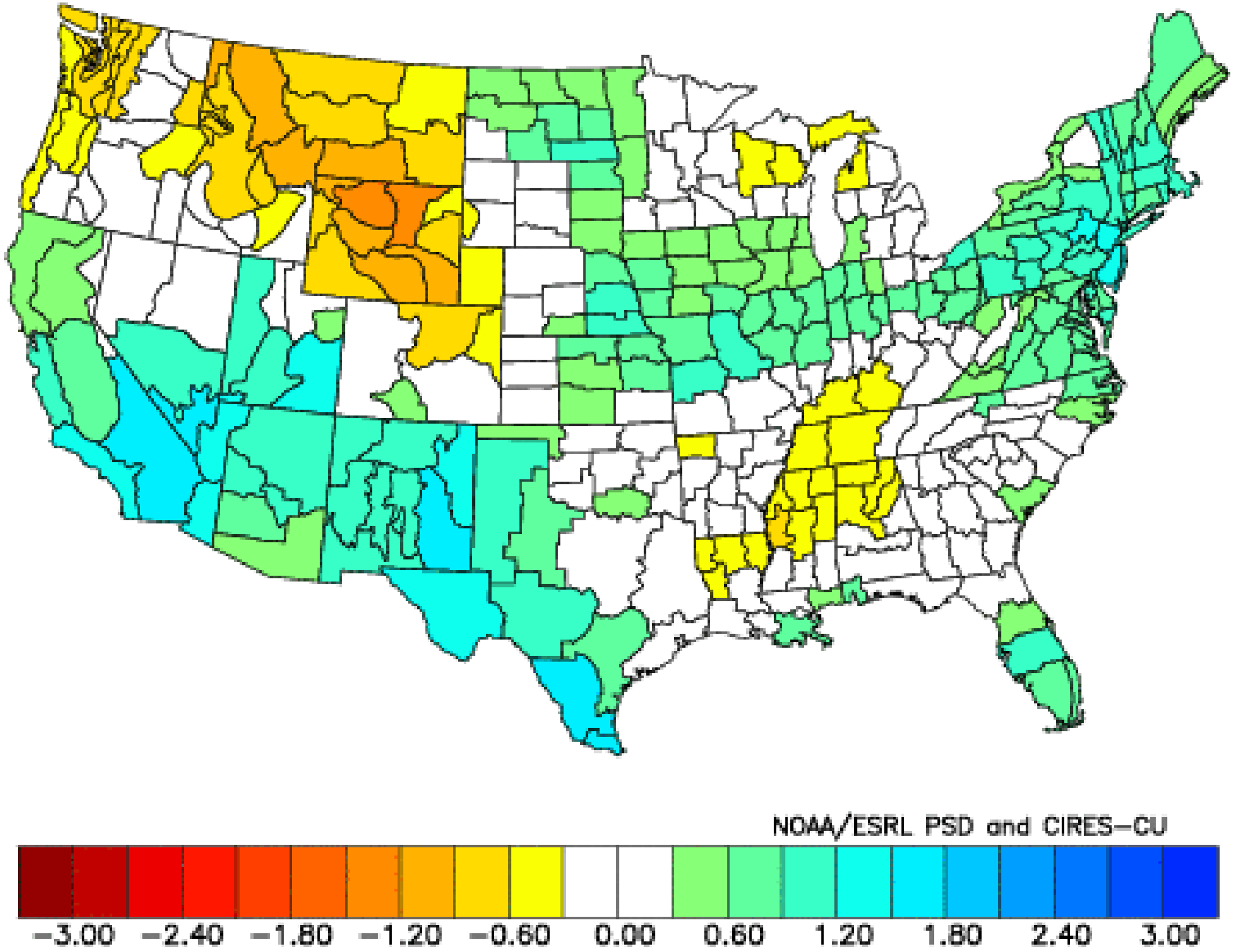

NOAA/NCDC Climate Division Composite Temperature Anomalies (F)
Sep to Nov 1957,2004,2009
Versus 1950-1995 Longterm Average
NOAA/ESRL PSD and CIRES-CU
-3.00 -2.40 -1.80 -1.20 -0.60 0.00 0.60 1.20 1.80 2.40 3.00

ART DOUGLAS

NOAA/NCDC Climate Division Composite Standardized Precipitation Anomalies

Dec to Feb 1957–58,2004–05,2009–10

Versus 1950–1995 Longterm Average



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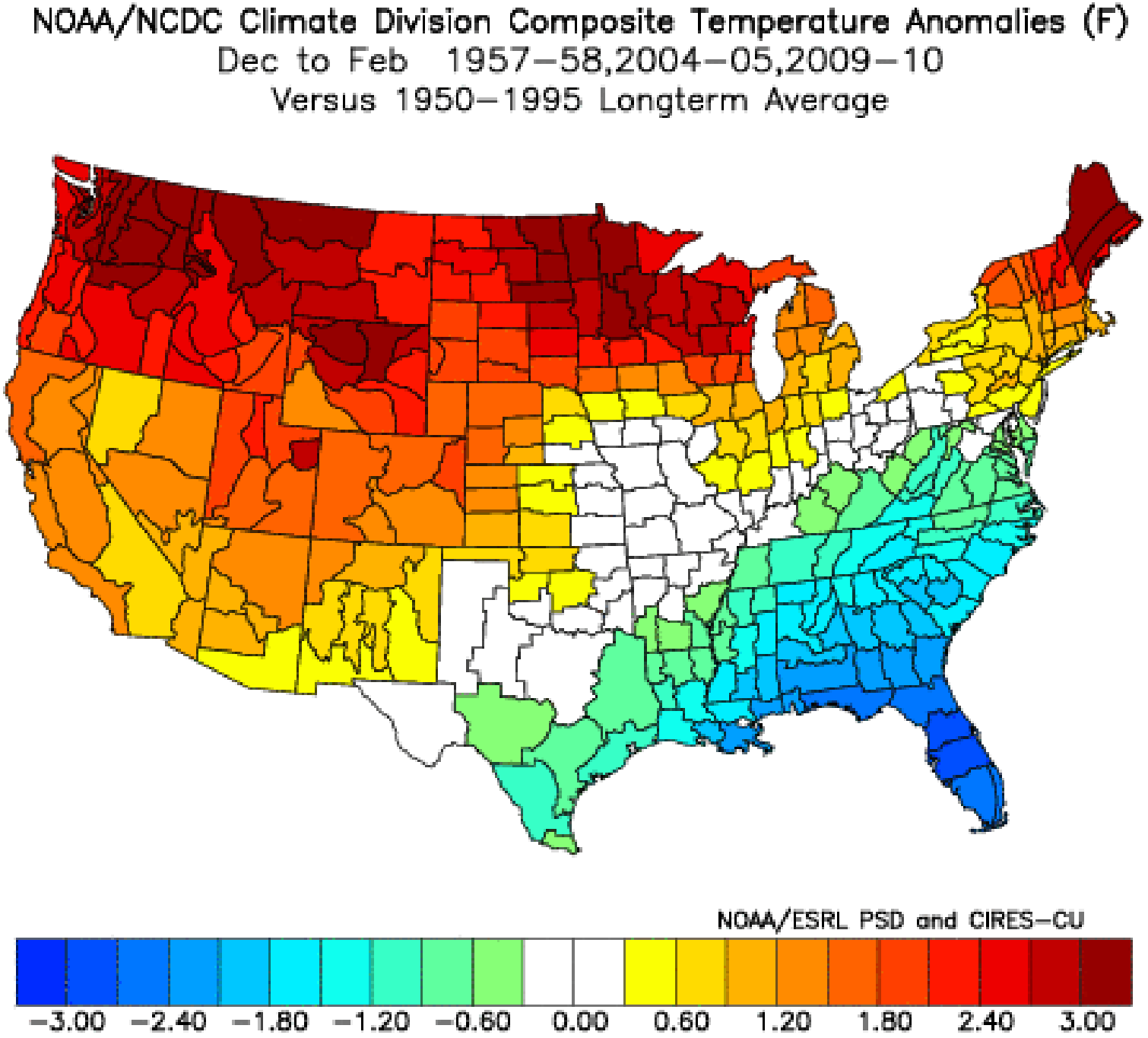
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Versus 1950–1995 Longterm Average
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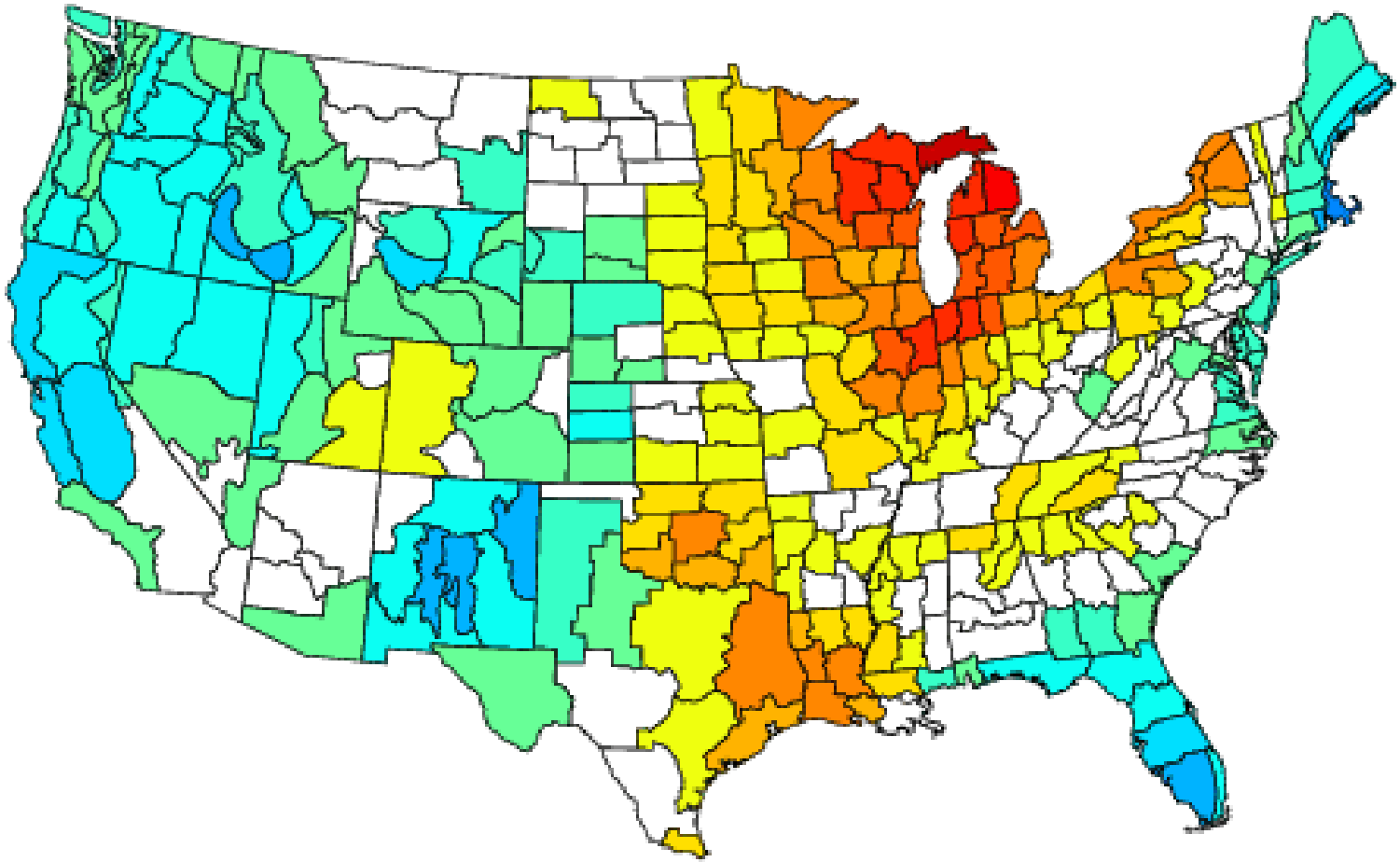
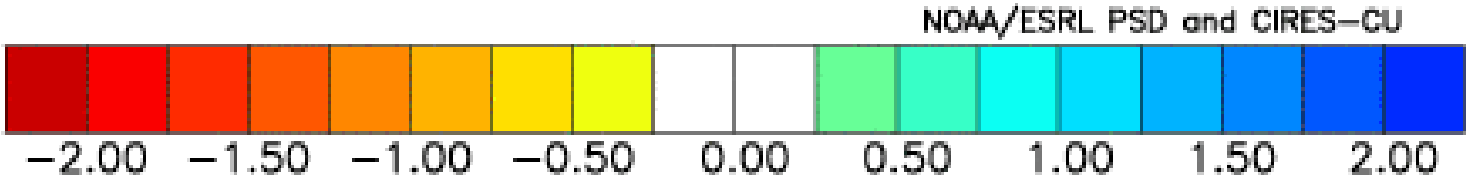
ART DOUGLAS

NOAA/NCDC Climate Division Composite Standardized Precipitation Anomalies

Mar to May 1958,2005,2010

Versus 1950–1995 Longterm Average





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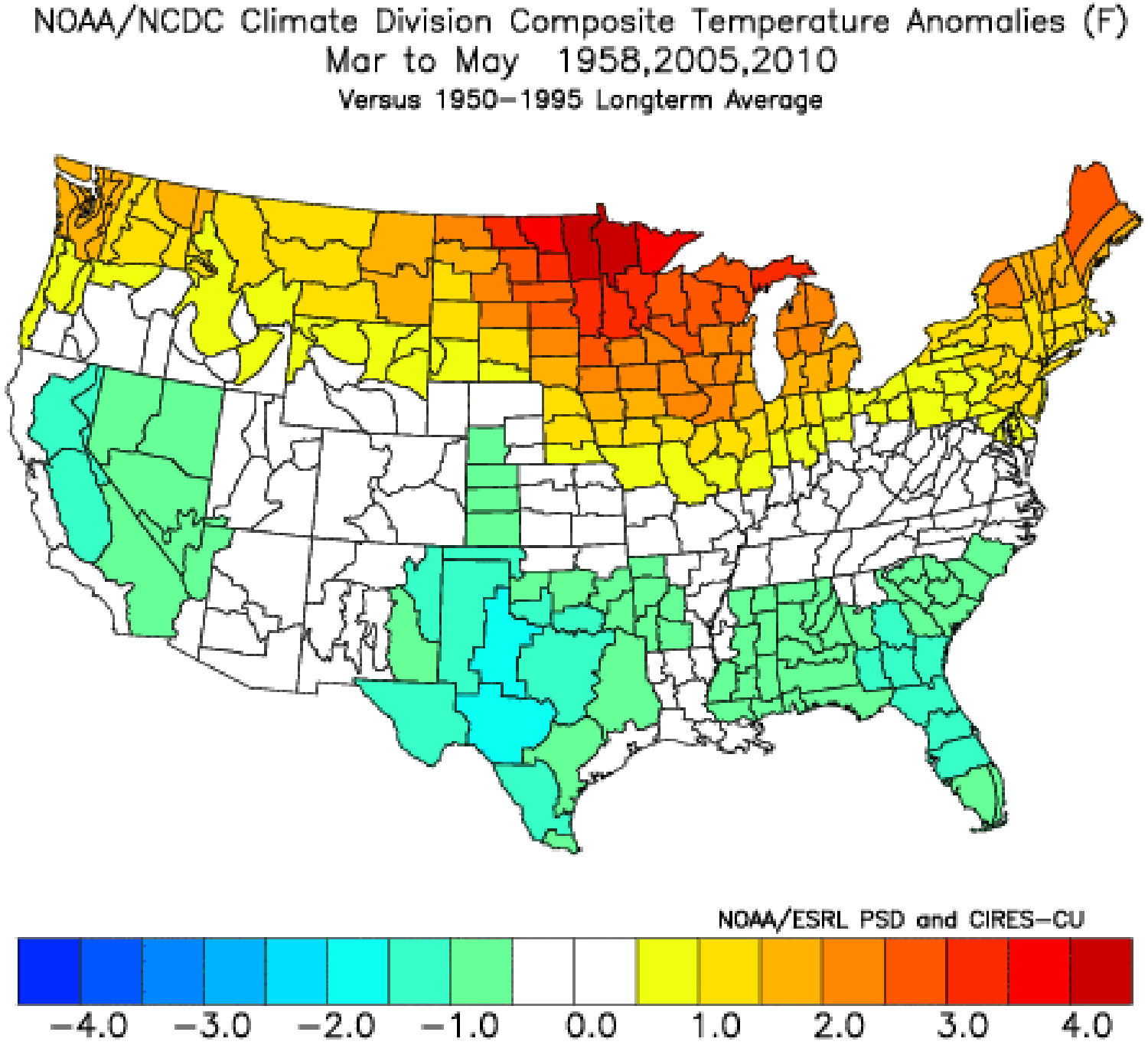
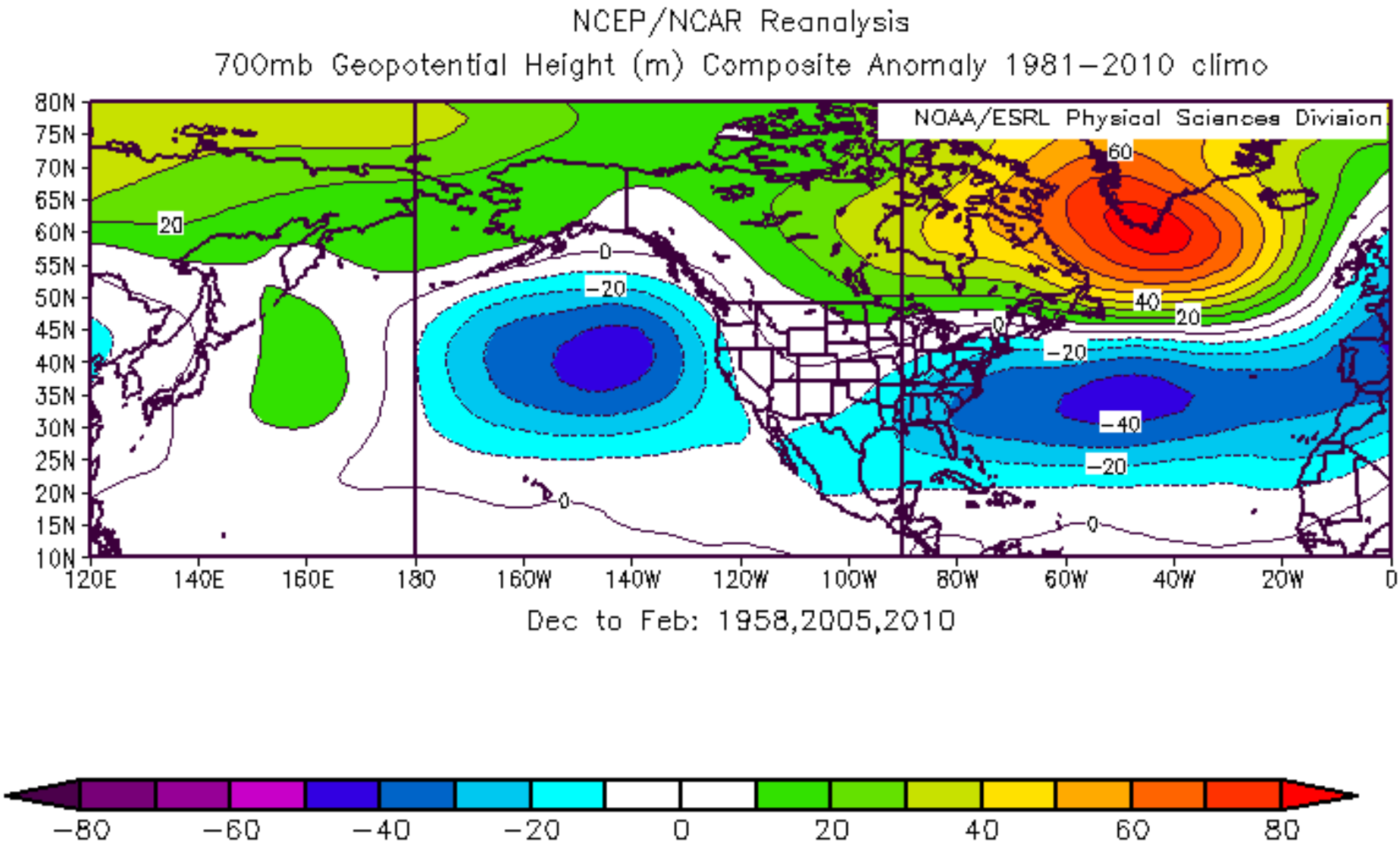

NOAA/NCDC Climate Division Composite Temperature Anomalies (F)
Mar to May 1958,2005,2010
Versus 1950–1995 Longterm Average
NOAA/ESRL PSD and CIRES–CU
−4.0
−3.0
−2.0
−1.0
0.0
1.0
2.0
3.0
4.0

ART DOUGLAS


NCEP/NCAR Reanalysis
700mb Geopotential Height (m) Composite Anomaly 1981–2010 climo
NOAA/ESRL Physical Sciences Division
80N
75N
70N
65N
60N
55N
50N
45N
40N
35N
30N
25N
20N
15N
10N
120E
140E
160E
180
160W
140W
120W
100W
80W
60W
40W
20W
0
20
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-20
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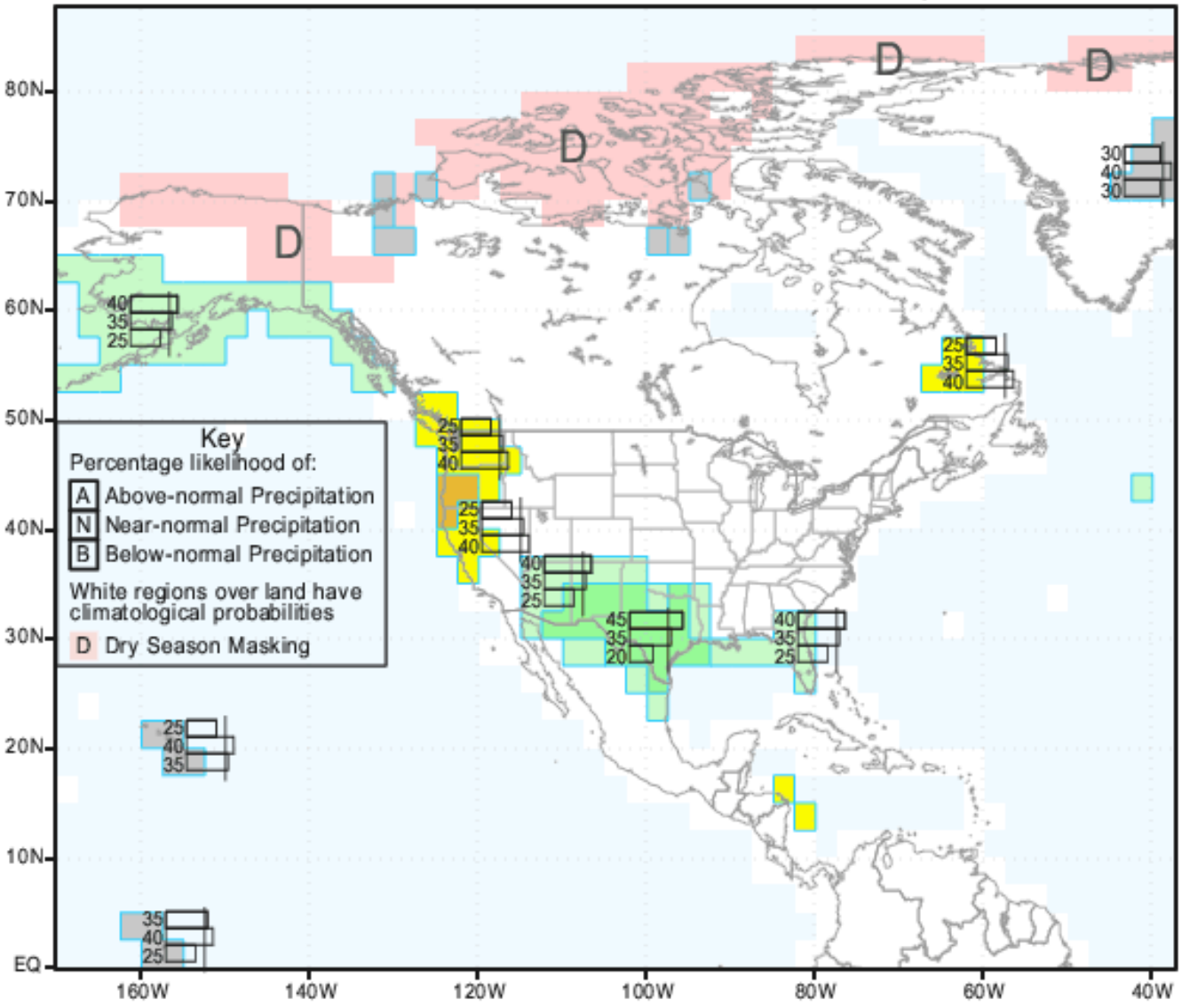
40
20
0
-20
-40
-20
0
Dec to Feb: 1958,2005,2010
-80
-60
-40
-20
0
20
40
60
80

ART DOUGLAS

IRI Multi-Model Probability Forecast for Precipitation for October-November-December 2014, Issued September 2014



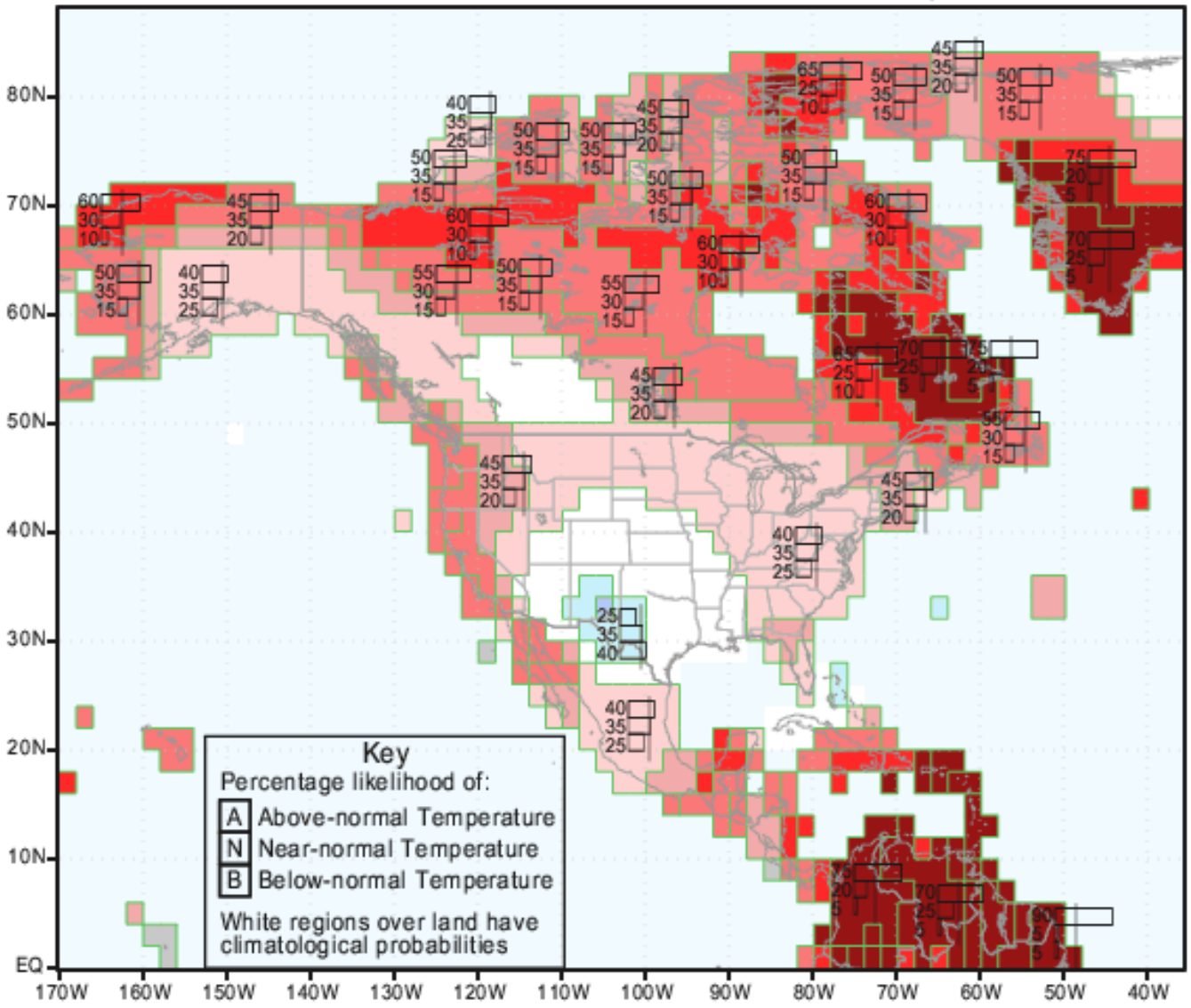
Probability (%) of Most Likely Category

Below-Normal: 40 45 50 60 70

Normal: 40

Above-Normal: 40 45 50 60 70

IRI Multi-Model Probability Forecast for Temperature for October-November-December 2014, Issued September 2014



Probability (%) of Most Likely Category

Below-Normal: 40 45 50 60 70

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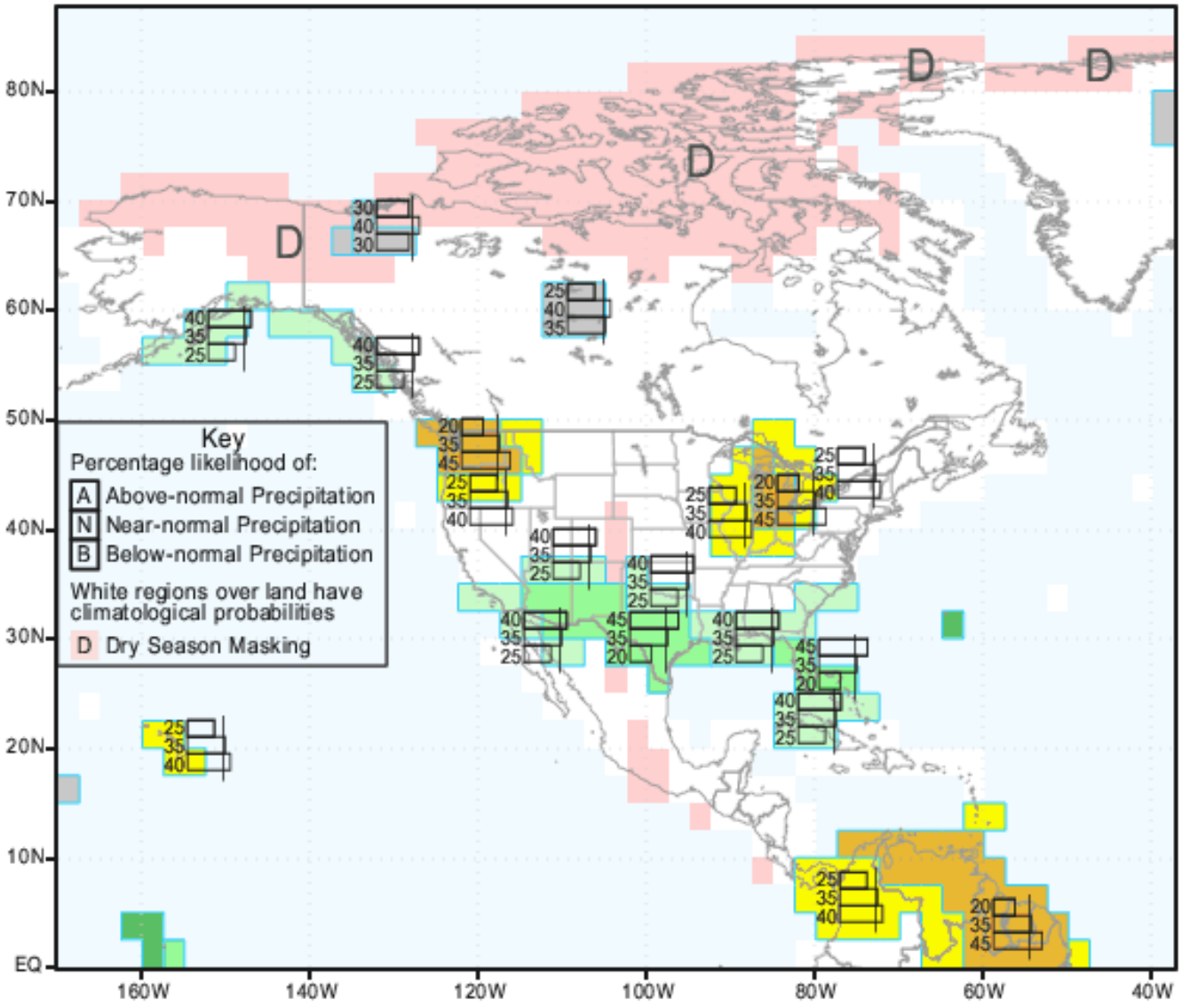
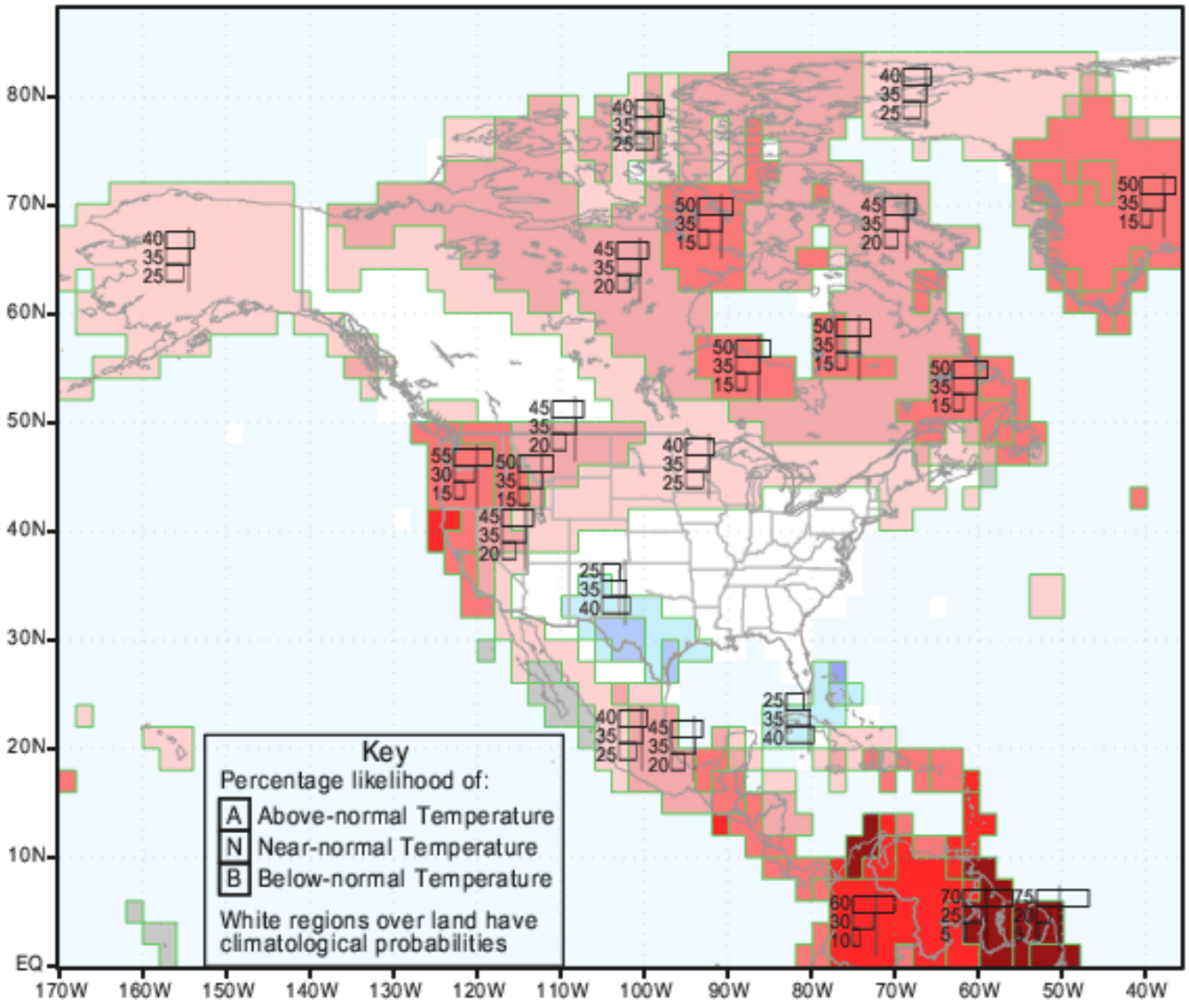


Probability (%) of Most Likely Category

Below-Normal					Normal	Above-Normal				
40	45	50	60	70	40	40	45	50	60	70

IRI Multi-Model Probability Forecast for Temperature for December-January-February 2015, Issued September 2014



Probability (%) of Most Likely Category

Below-Normal: 40 45 50 60 70

Normal: 40

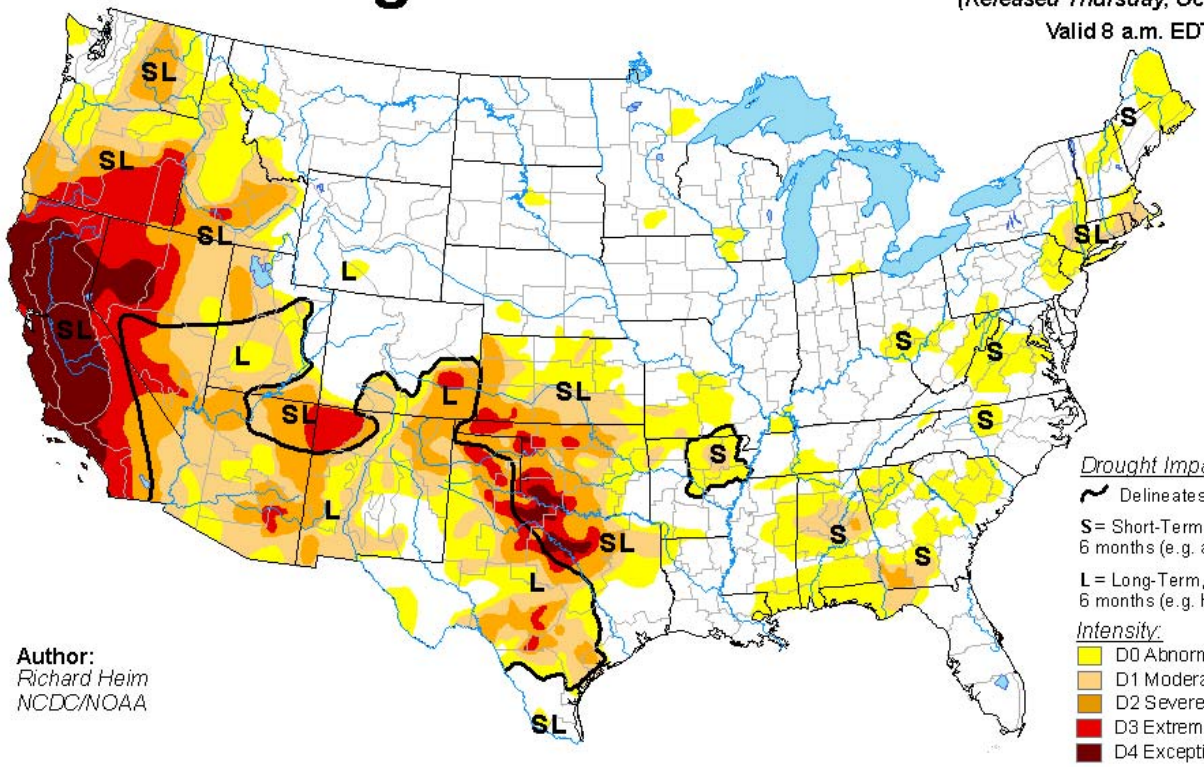
Above-Normal: 40 45 50 60 70

U.S. Drought Monitor

September 30, 2014

(Released Thursday, Oct. 2, 2014)

Valid 8 a.m. EDT



Author:
Richard Heim
NCDC/NOAA

Drought Impact Types:

Delineates dominant impacts

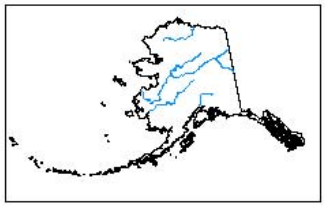
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

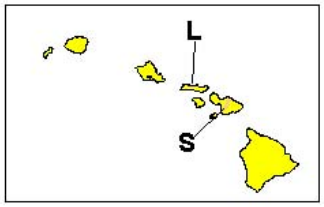
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

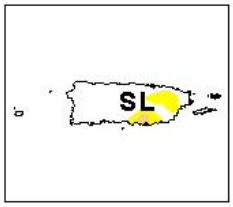
Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.







USDA

National Drought Mitigation Center

http://droughtmonitor.unl.edu/